

Designing Tech Tools for Crisis and Natural Disaster Relief



Eriol Fox | Design for Crisis | Ushahidi | Third Sector Design | @erioldoesdesign



Content warnings

Natural disasters, fires, famine, floods, hurricanes, earthquakes, terrorism.

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Hi, I'm **Eriol**. (Ehh-roll).

I'm a **humanitarian designer**
or a **human rights centred designer**.
Open Source Design **advocate**.

They/Them pronouns.

10 years in digital product design and UX.

7+ years in Community/Humanitarian spaces.



Agenda

Crisis lifecycle and background

MVP and Automation

Kenya field research

Challenges and Takeaways



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Crisis lifecycle and background



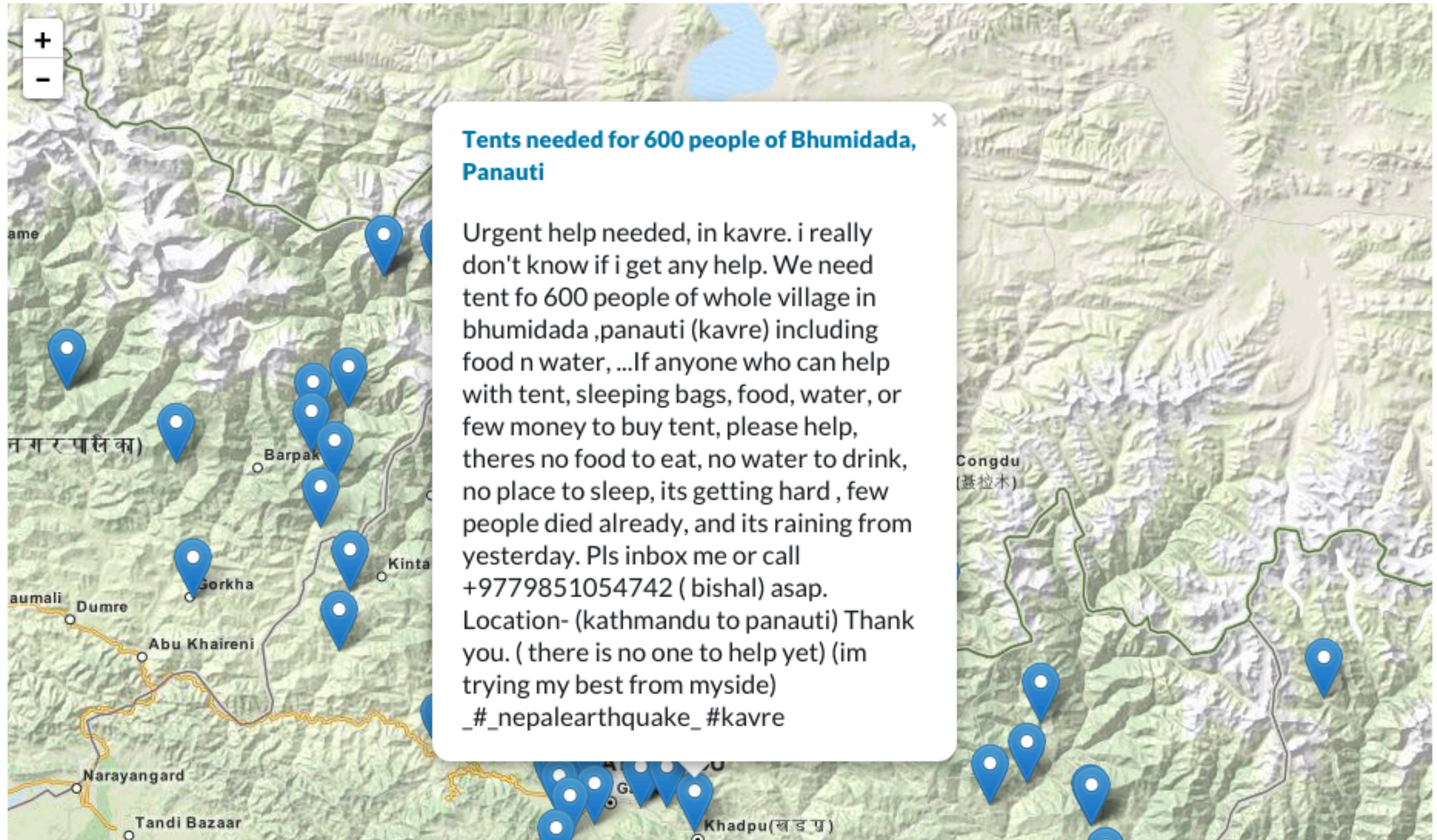
VIEW

Map

List

Bar Chart

Timeline



Tents needed for 600 people of Bhumidada, Panauti

Urgent help needed, in kavre. i really don't know if i get any help. We need tent fo 600 people of whole village in bhumidada ,panauti (kavre) including food n water, ...If anyone who can help with tent, sleeping bags, food, water, or few money to buy tent, please help, theres no food to eat, no water to drink, no place to sleep, its getting hard , few people died already, and its raining from yesterday. Pls inbox me or call +9779851054742 (bishal) asap. Location- (kathmandu to panauti) Thank you. (there is no one to help yet) (im trying my best from myside)
#_nepalearthquake_ #kavre



Using Ushahidi's OSS tools, Kathmandu Living Labs was able to map all the health facilities in Kathmandu Valley before the earthquake, which undoubtedly helped the relief workers' ability to deliver supplies and help save lives.





Kerala Floods

irmamiami.usshahidi.io

Hurricane Irma

irmamiami.usshahidi.io

Somalia's drought

abaaraha.org

Terrorism in Kenya

tenfour.org

Covid-19

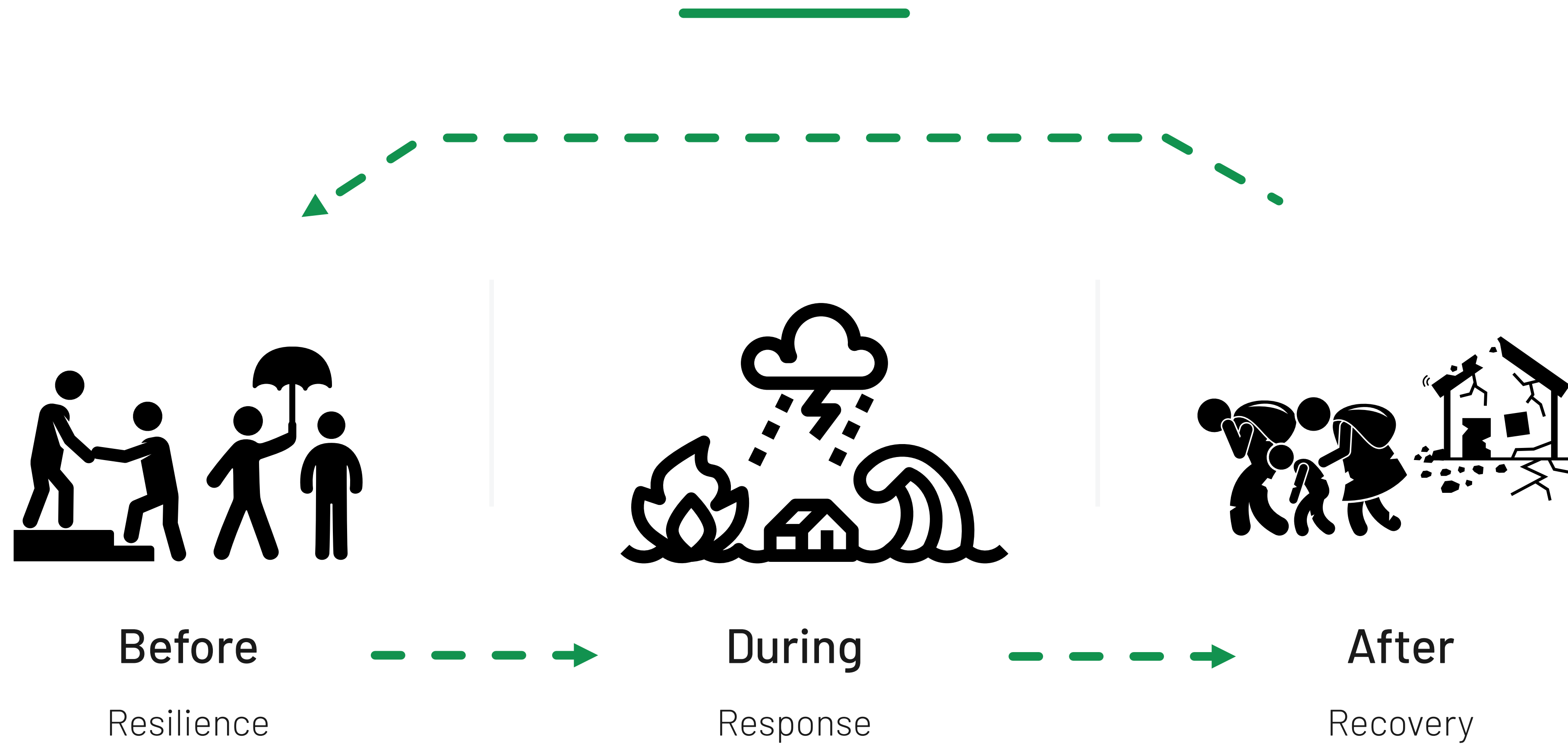
ushahidi.com/covid



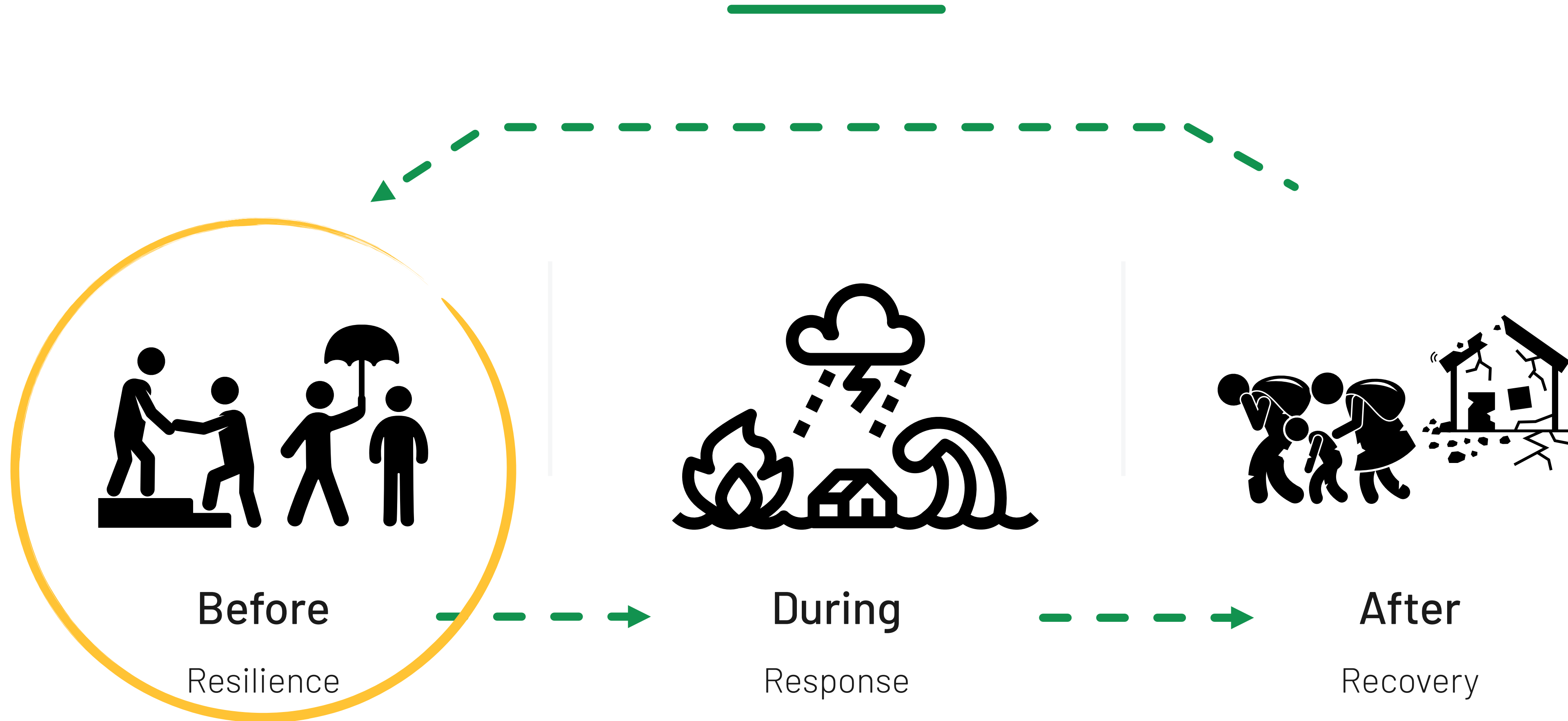
In a Crisis, discovering
the needs of people who
are affected is
complicated.



Lifecycle of a crisis



Lifecycle of a crisis



Can a tech tool help a
community build
capacity to help each
other before an incident?



Kathmandu Living Labs

quakemap.usahidi.io

शान्तिपार्क पर तिम्बो (एक)
समुद्रतलमा जागगी पाउने,
थुके बस्ते, हल्लाए तिं,
बोलाए सुरकोसो थुकेसलेना,
साथ सुपानेच पाणे पूर-थुकेसलेना,
थुके हल्लाए तिं,
तिम्बो सुपाने तिं (एक)



Communities
band together
in crisis.



A photograph of a car accident scene. A blue hatchback car is on its side, with its rear hatch open. Three firefighters in yellow and green gear are working around the car. A large crowd of people, including children, is gathered in the background. A white van with 'POLICE' written on it is also visible. The scene is outdoors with trees in the background.

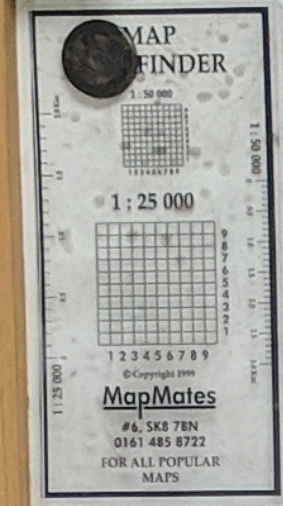
We did ethnographic research locally

[Nailsea Firestation: www.avonfire.gov.uk](http://www.avonfire.gov.uk)

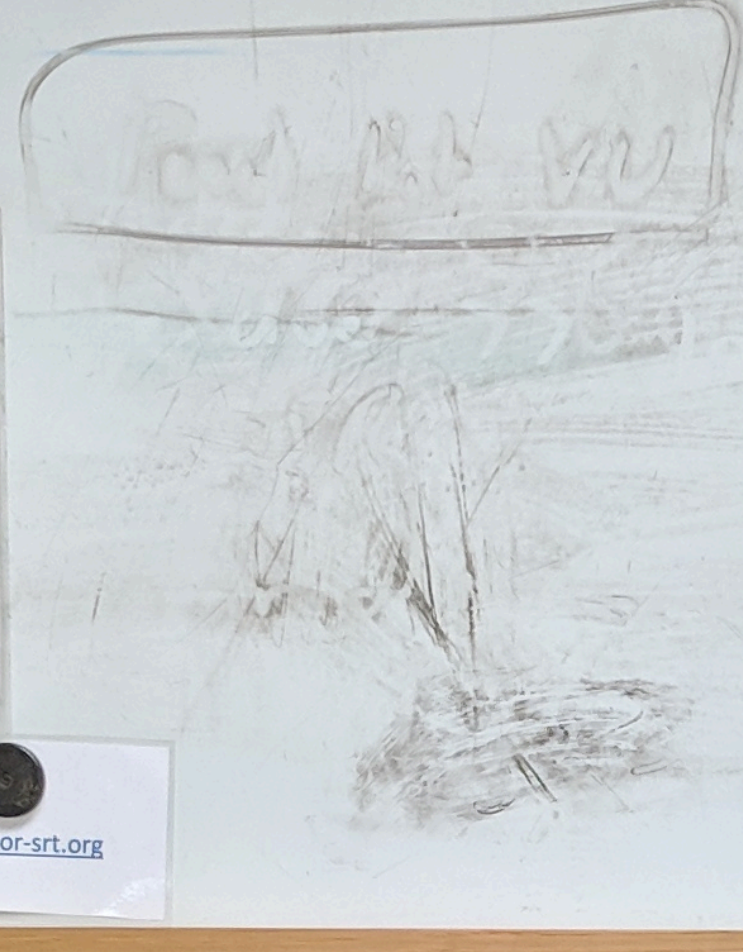


MAST
Roof

240V. Strip Light



Control address
search@exmoor-srt.org



ESIP
ESIP Control Room - Quick Reference Guide

Incident Initiation Form

Time of Call _____ Date _____
 Organisation _____
 Name of Caller _____ Tel No _____

M ajor Incident	Major incident declared? (Include date & time of declaration)	
E xact Location	Exact location / geographic area of incident	
T ype of Incident	Flooding / Fire / Utility Failure / Health / Disease outbreak etc.	
H azards	Present or suspected	
A ccess	Routes that are safe to use, any inaccessible routes and RVP's	
N umber of Casualties	Numbers, type and severity	
E mergency services	Present and those required	

Signature (once complete) _____
 Searcher when complete _____

Usage - The Internet access is using an EE SIM - it is prepaid valid for 6 months (starting 11/02/2017) at 2 GBs per month. It is important NOT to perform software updates on this mobile data SIM as it will use all the data allowance. If software updates are needed these need to be done on WiFi.

This SIM only uses EE, there is no roaming to other networks.

For TOP UP of the SIM - its number is 07508 581510

Channels - TWC 534 FALLBACK 533

RADIO CHECK -
 Exmoor Control, Exmoor Control, This is Exmoor Zero One, Radio Check Over.
 Exmoor Zero One, This is Exmoor Control, Loud and Clear, Over.
 This is Exmoor Zero One, Loud and Clear, Out.
 Loud and Clear - very strong, very clear signal
 Good, Repeatable - Fair strength, and readable signal
 Repeatable Repeatable - very weak, unreliable

THE FOUR RULES
 1. TALKING - Exmoor Control, Exmoor Control, This is Exmoor Zero One, Over.
 2. RESPONDING - Exmoor Zero One, This is Exmoor Control, Over.
 3. START ALL MESSAGES: This is Exmoor Zero One.
 4. FINISH ALL MESSAGES: Over or Out.

PROWORDS
 OVER - To send message, expect reply
 OUT - To end message, not reply required
 OUT TO YOU - End message, continue message to another party.
 STAND BY or WAIT - UT - Wait a moment
 GRID - A grid reference follows
 COPY or ROGER - Understand your message
 COPY or ROGER SO FAR - Understand so far
 SAY AGAIN or REPEAT - Repeat your message
 PRIORITY or URGENT -
 PASS YOUR MESSAGE - Ready to receive message
 NEGATIVE - If
 AFFIRM, AFFIRMATIVE or CORRECT - Yes
 NOTHING HEARD, OUT - Use if no response
 NO DUFF or NO PLAY - For read, not an answer
 BE ADDRESSED - I am listening
 RELAY THROUGH ME - An offer to relay
 UNKNOWN STATION - Do not sit on it - stop your TRANSMITTING BLIND - (not a good thing)
 POLICE OFFICER REQUIRE CHANGE TO CHANNEL "112"
 ALL STATIONS, ALL STATIONS

Comment received by station

00 min + 1.0
05 min + 0.02
10 min + 0.03
15 min + 0.03
20 min + 0.03
25 min + 0.03
30 min + 0.03
35 min + 0.03
40 min + 0.03
45 min + 0.03
50 min + 0.03
55 min + 0.03
60 min + 0.03
65 min + 0.03
70 min + 0.03
75 min + 0.03
80 min + 0.03
85 min + 0.03
90 min + 0.03
95 min + 0.03
100 min + 0.03

MAST
Roof

ESIP

ESIP Control Room - Quick Reference Guide

Incident Initiation Form

terra

terra

simoco

simoco

plugable

Radio Channels

Chan	Channel	Use
001	001	Emergency
002	002	Emergency
003	003	Emergency
004	004	Emergency
005	005	Emergency
006	006	Emergency
007	007	Emergency
008	008	Emergency
009	009	Emergency
010	010	Emergency
011	011	Emergency
012	012	Emergency
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098	098	Emergency
099	099	Emergency
100	100	Emergency

EMERGENCY AMBULANCE

IC

ZONE 1

TEAM

COMMENTS

2IC

ZONE 2

IMPORTANT CONTACTS

ZONE 3

ZONE 4

ZONE 5

TEAM A

TEAM B

TEAM C

TEAM D

TEAM E

REST

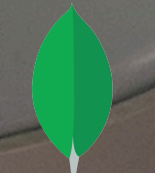
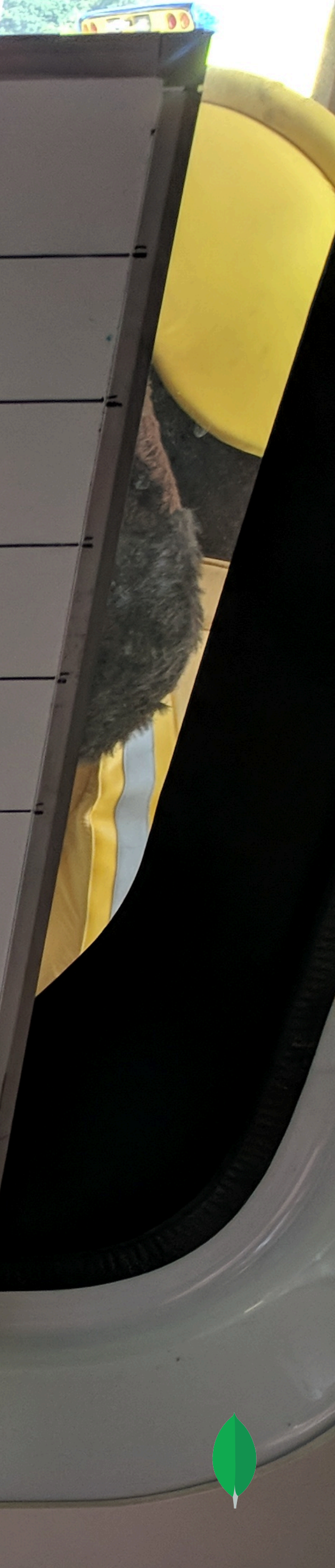
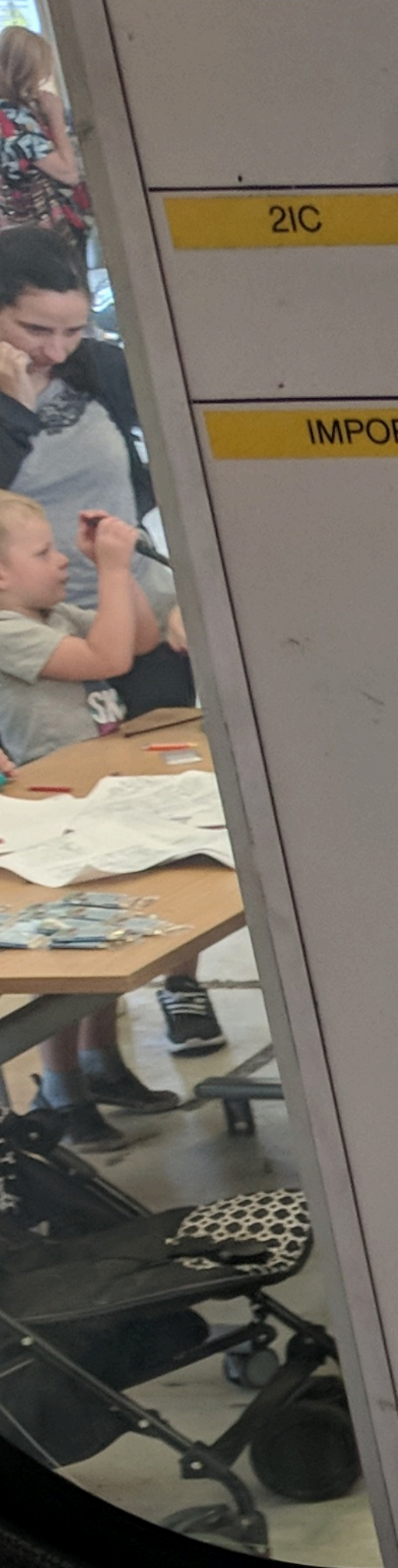
Key rack for TEAM A with 5 hooks. Includes a green keychain with 'John' written on it, a green keychain, and a red keychain.

Key rack for TEAM B with 5 hooks.

Key rack for TEAM D with 5 hooks.

Key rack for TEAM E with 5 hooks. Includes a red keychain and a green keychain.

Key rack for REST with 5 hooks. Includes a green keychain.



17:05

OLIO

Distance: 2km

From: home

Sorted by: closest

Show wanted listings: Off

Browse View: [List] [Grid] [Map]

 **Eriol**

0 Likes

Free 0 m

Sanitary items



JUST ADDED



- Food
- Non-Food
- Just Gone
- Community
- Messages

neighbourly Search... About Discover Create a project

Projects Volunteer Donate Campaigns Companies In-kind

Project filters Show map

Location: Any distance from Bristol BS3

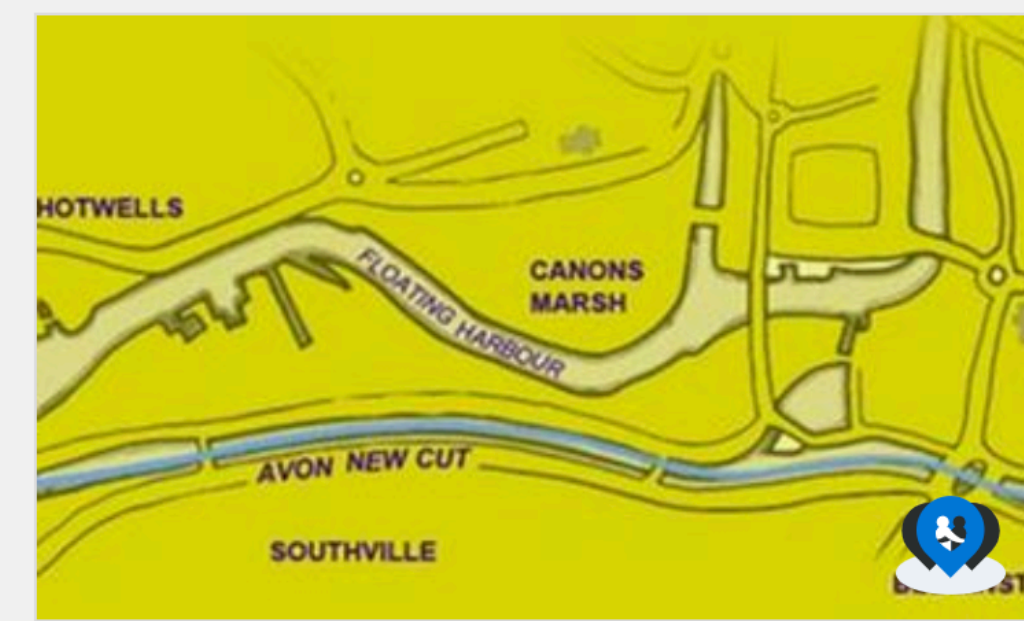
Keyword: Including words

Filter by category: All categories

Order by: Distance - nearest first

With volunteering

Home Messages Notifications



PROJECT GROUP

Friends of the Avon New Cut

The Friends of the Avon New Cut (FRANC) is a group of local people who are promoting a greater understanding and appreciation of the

Bristol, UK




SUSTAINABLE CITIES AND COMMUNITIES

Friends of Avon New Cut - Promoting the New Avon C...

Greater Bedminster Neighbourhood Partnership: The tidal Avon New Cut, excavated in the early 19th century, was an essential part of

Bristol, UK

Create request Bristol, GB £0 - £250 All tags

 **Bedminster Cat** FAVOUR

Awesome happy people needed

2.2 km Mon, 10 Jun

 **Tania McCormick** FAVOUR

Car lock replacement

0.9 km Sun, 9 Jun





User focus

Organised but not
'digital' or
'discoverable'

Digital but not
'connected to real-
life community'



Real life connections
alongside a digital
solution.



MVP and Automation



MVP: What do we **need**
to know from users?

Why do you help?

What are the deep motivations for helping members of your community?

What is the risk?

How do helpers/requester mitigate risk to their safety?

Small choices matter

What are the micro decisions you make in a voluntary exchange?



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Research. Dev scope.

Fundraising.


Design+Dev iteration x 5.

Field Work prep. QA testing.


In-country field work. Reporting.




Landing page - Help others - 4


Dispatcher - Help others 


Explore requests near you

 **View requests near you**
Requests you can help that are within a 30-minute walk from your location. [VIEW MAP](#)






Help others near you

 **Zawadi Nasenyana is requesting...**
I need extra clothes for my kids as they've grown out of their...

 **Jonah Ereng is requesting...**
I need help with my car that won't start or a lift to work please!


 **Laurence Ipsum is requesting...**
I need to clear up my overgrown garden. There are lots of weeds!


[OFFER HELP](#)

Help others Request help Matches Chat Profile

Request details - 1

 Offer help near you


 **Zawadi Nasenyana**
Last used 1 hour ago
Posted 1st Feb [VIEW PROFILE](#)

Request:

What do they need help with?
I need extra clothes for my kids as they've grown out of their clothes and it's getting cold here. We need boots & socks.

Details:


Their availability
Evenings, Saturday, Sunday

Where they will be:
 Within 30 mins of you
North rd, Southville, Bristol, UK


You can chat with Zawadi Nasenyana to work out the details of the request or you can confirm that you want them to help.

[CHAT](#) [OFFER & CONFIRM](#)


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You can chat with Zawadi Nasenyana to work out the details of the request or you can confirm that you want them to help.

[CHAT](#) [OFFER & CONFIRM](#)

Offer help - description active


Request help

What can you offer?
I can offer...

 Describe the activities or items you can offer

Details

What's your availability?
Evenings, Saturday, Sunday

Where will you be?
 **Your device location**
You will request help from folks within 30 minutes from your device's location.

[REVIEW OFFER & CONFIRM](#)




How might we use
automation to build real
life connection in
resilience exchanges?



← General Help Request

What helpers will see listed:

Locating a match...
We're locating a person who can help you out...sit tight...




What's your availability?
Evenings, Sundays

Where will you be?
Your device location
You will request help from folks within 30 minutes from your device's location. **CHOOSE**

Details for a match

General help

← Request matched!

 **Brook Velasquez**
Last used 1 week ago
Posted 1st Feb [VIEW PROFILE](#)


Details of offer:

What they are offering:
We've got plenty of spare clothes from our youngest. We haven't sold yet.


Details:


Their availability
Mornings, Evenings, Sunday


Where they will be:



 Within 30 mins of you
Pete's Coffee, George Padmore Ln, Nairobi, Kenya.


You can chat with Brook Velasquez to work out the details of the request or you can confirm that you want their help.
If you don't want to accept help for this person you can [view a list of other people who can help.](#)



Matches 


 **Waiting for response**


 **Izzy Meggat is requesting...**
I need warm clothes for my kid's it's getting cold and they don't... **CONFIRMED**



  **Brook Velasquez is offering...**
I have lots of spare kids clothes and toys before I sell them... **PENDING ACCEPTANCE**

 **Izzy Meggat is offering...**
I've made too much jam from my berry harvest and I'm giving it... **ACCEPT**

  **James Bowden is requesting...**
I'd really like some of that extra jam you have for a... **CONFIRMED**

 **Confirmed matches**

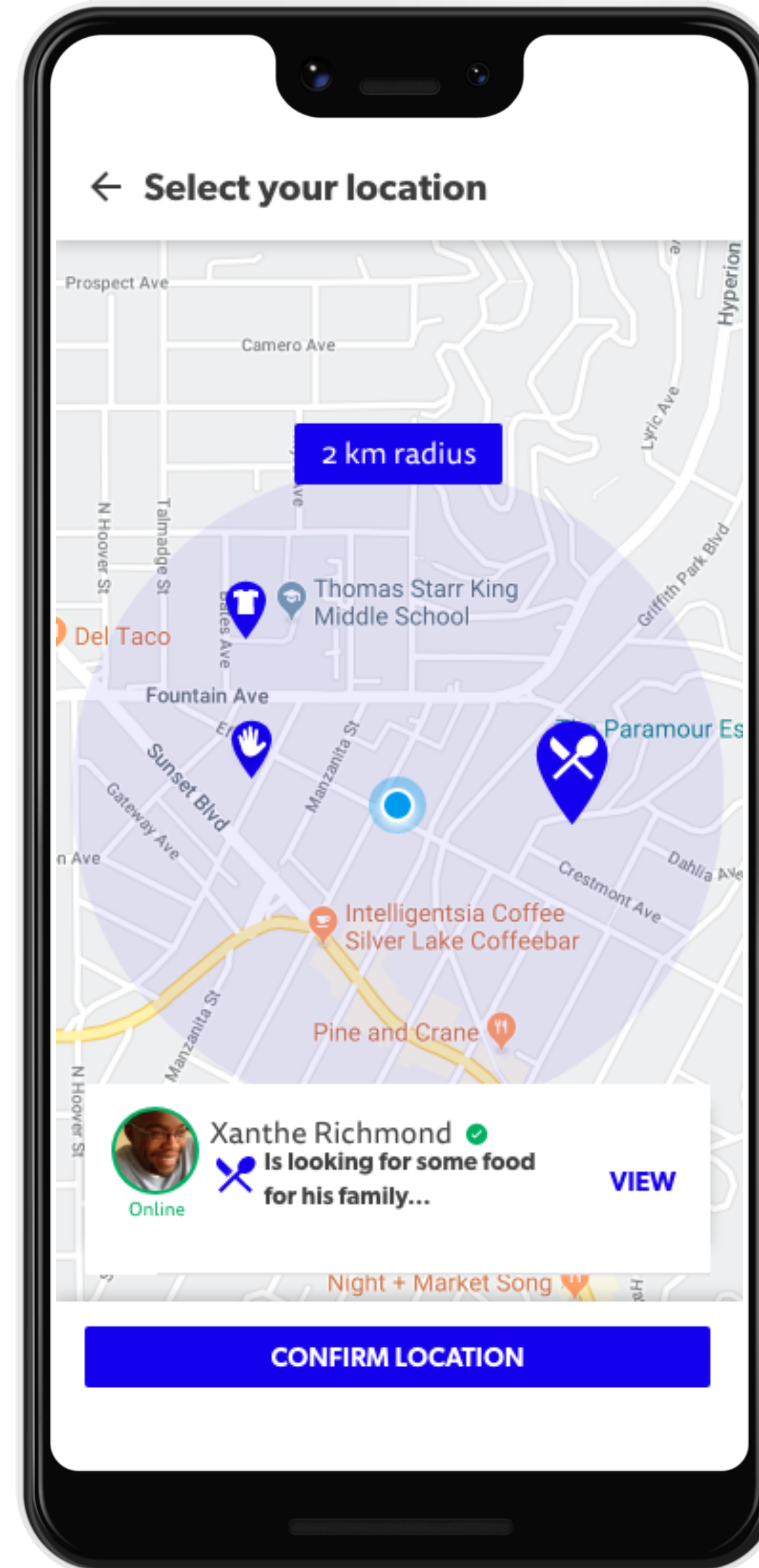
 **Izzy Meggat is offering...**
I love gardening! I can help with any kind of yard work... **CONFIRMED**

  **Laurence Laloux is**



Dispatcher

A peer-to-peer, community led, needs assessment, matching, and recommendation system.



Categories

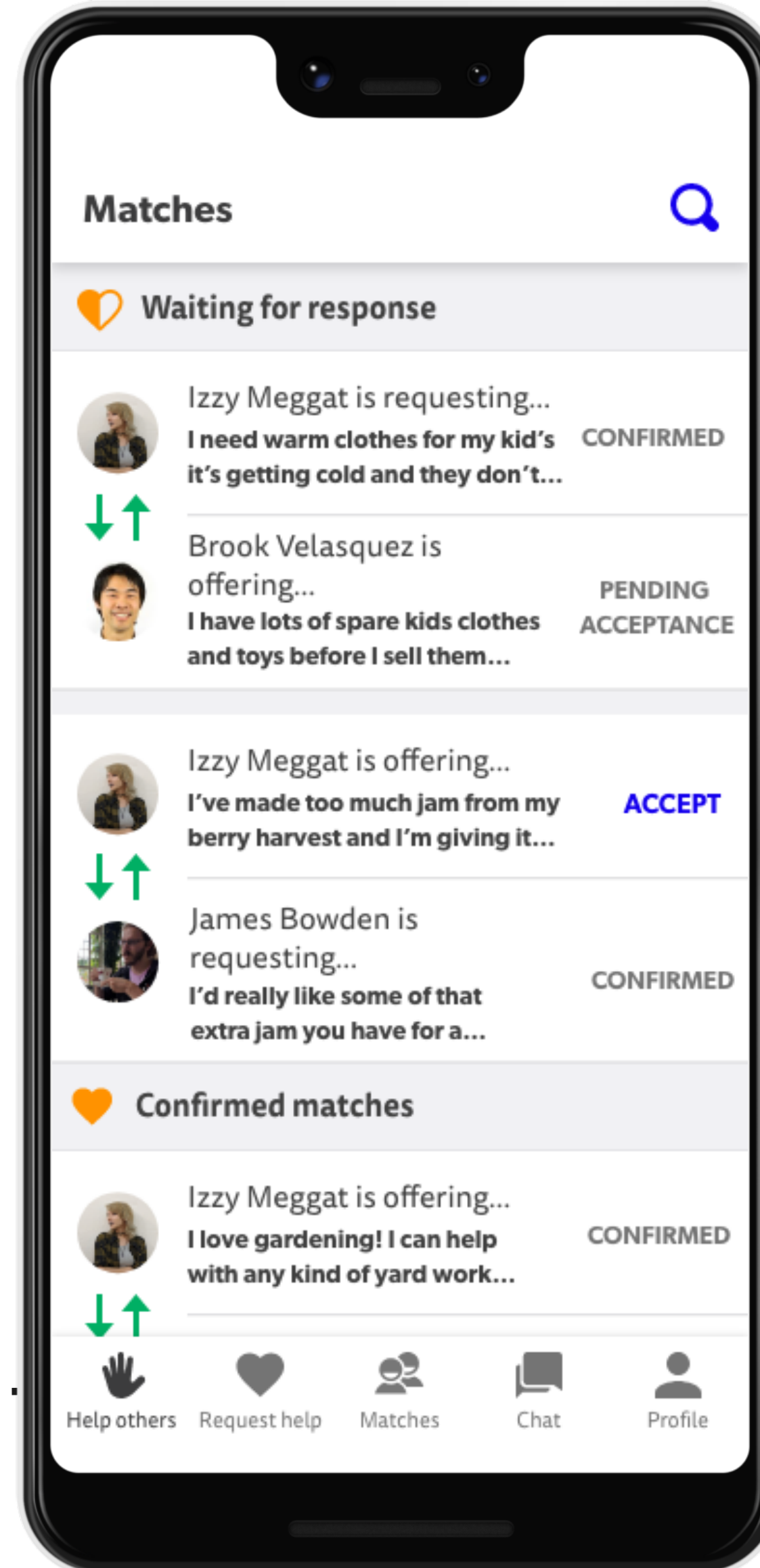
Categories and tags help with the matching process and helps Dispatcher learn.



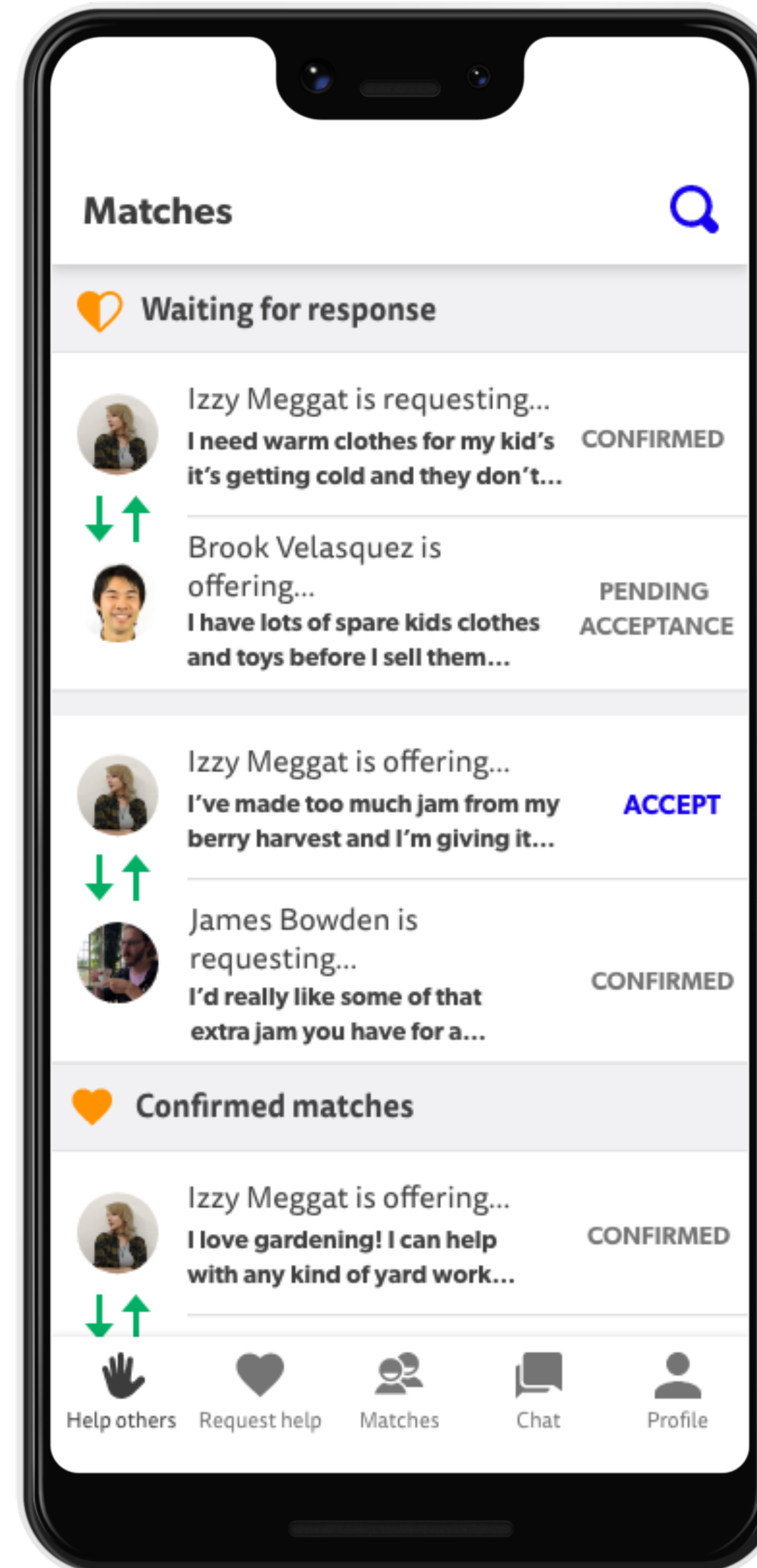
Dispatcher

Offer or receive

Choose both offer or receive, there no obligation to participate both ways.



Dispatcher



Safety

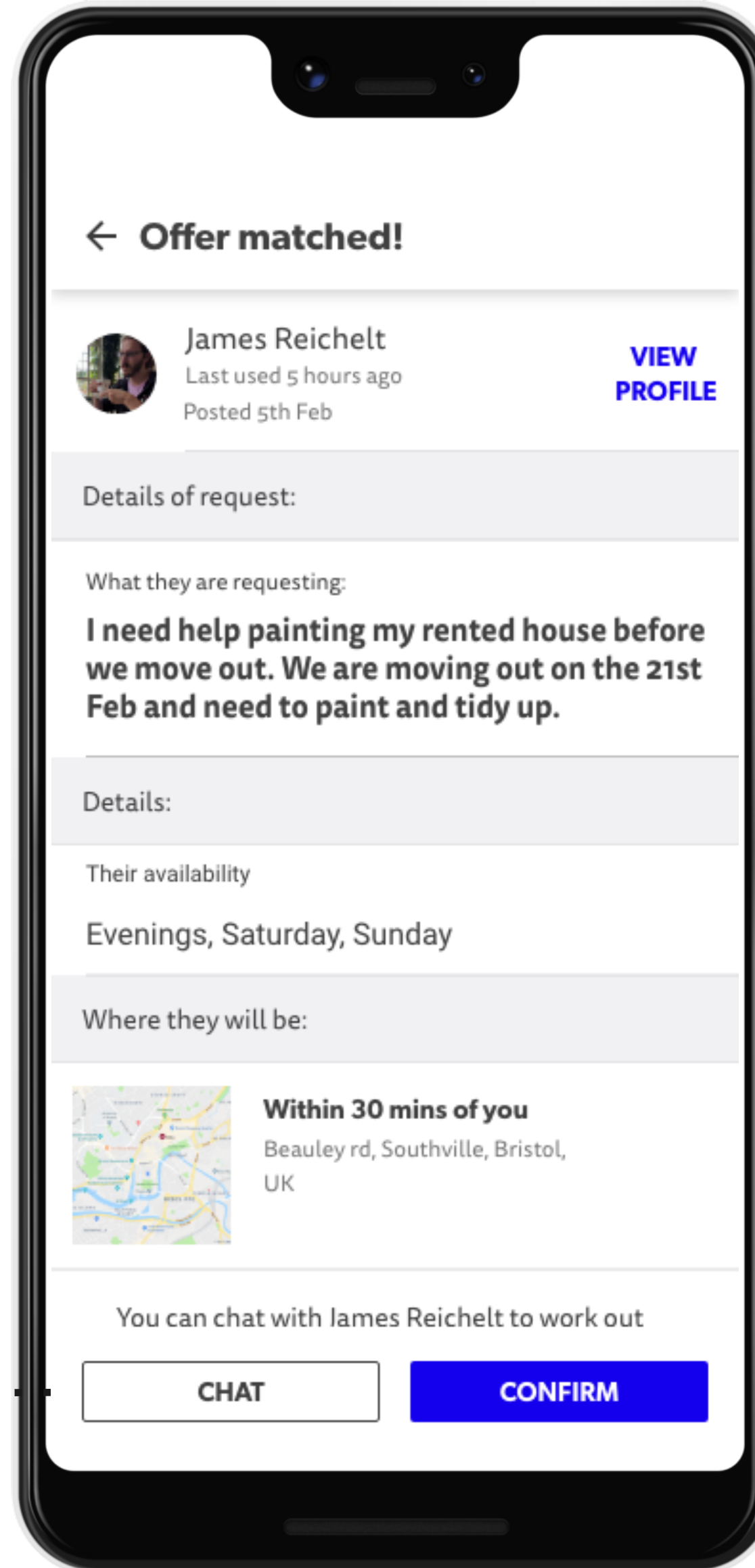
Even if you match, you can still anonymously decline to exchange help.



Dispatcher

Chat builds trust

Use a chat function and profile information to build trust before an exchange.



Kenya field research



Why Nairobi, Kenya?





Kibera

Kayole



Challenges and Takeaways





Shared affinity groups create a
foundation of trust.



Tone, language, choice and chat help to mitigate risk.

Trust bids
(customer bids)

SPACE
ONLINE

ok.

EF

Church groups
- you decide
fit in John

ZACH SAFE
SPACE
online

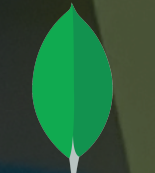
Chat School Friends of Friends
MK Friends
Village gawiness football fan.
ZM

Zach/ "Knowing what they say won't come back to hurt them" (nonimity)
RS

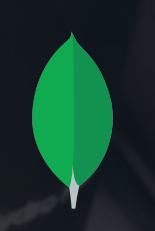
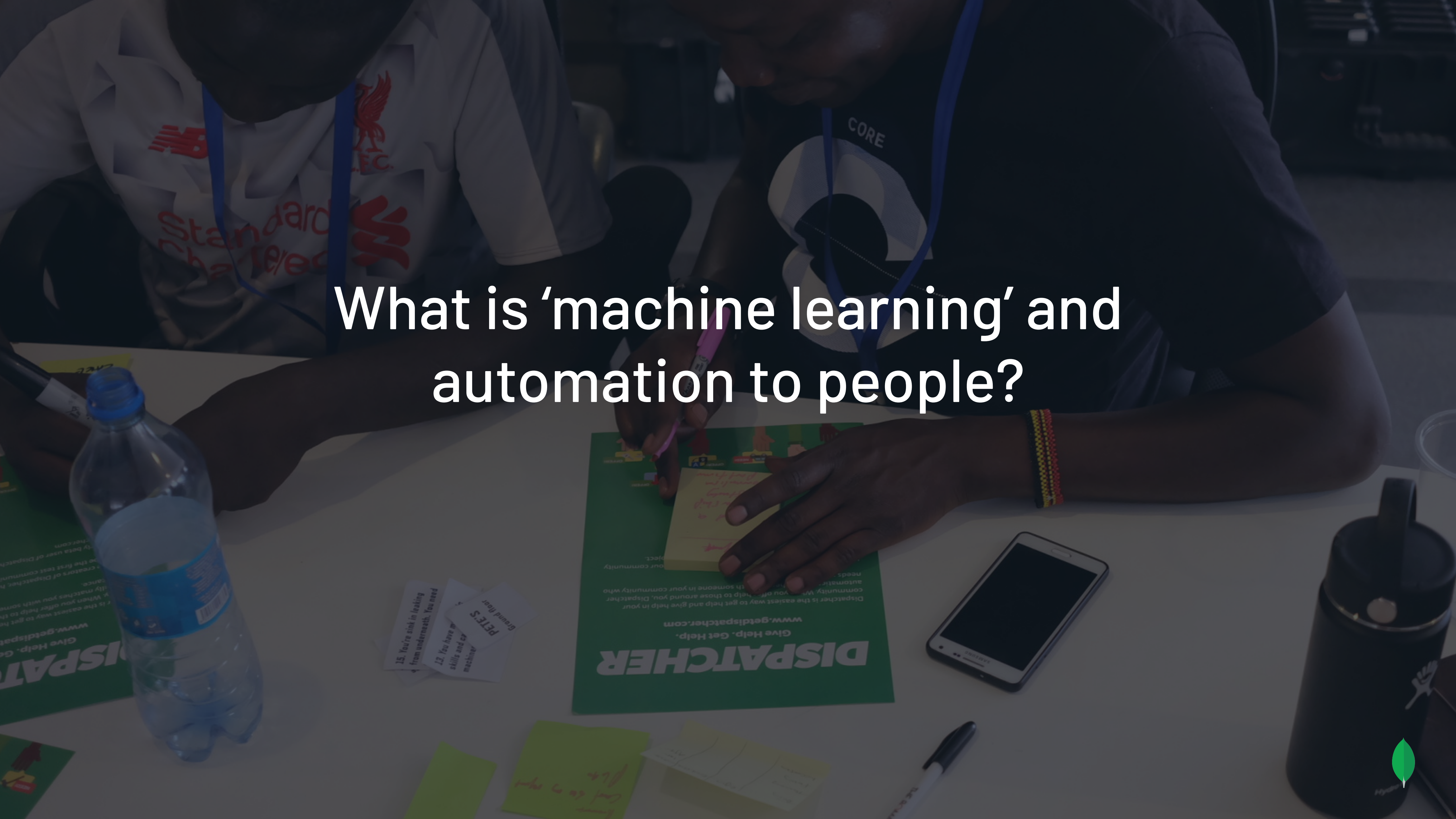
Afraid of being made fun of / meme mocked for vulnerability
EF ZM

Be calm
Keep it 100%

Rayden was to



What is 'machine learning' and automation to people?





Thank you

Slides and notes: <https://noti.st/eriolfox>

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